IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

PARTHENON UNIFIED MEMORY ARCHITECTURE LLC,	§ § §	**Case No. 2:14-cv-690-JRG-RSP** **(Lead)**
Plaintiff,	§ §	
v.	§ §	
HTC CORPORATION and HTC AMERICA, INC.,	§ § §	
LG ELECTRONICS, INC. and LG ELECTRONICS USA, INC.,	§ § §	**Case No. 2:14-cv-691-JRG-RSP** **(Consolidated)**
Defendants.	§ § §	

PLAINTIFF PARTHENON UNIFIED MEMORY ARCHITECTURE LLC'S
OPENING CLAIM CONSTRUCTION BRIEF

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

ii

I.   INTRODUCTION

Plaintiff Parthenon Unified Memory Architecture LLC ("PUMA") proposes constructions for the terms-in-dispute that are based on both the intrinsic and extrinsic evidence and that are consistent with a previous claim construction order signed by Judge Leonard Davis relating to the asserted patents. In contrast, Defendants HTC and LG propose constructions that improperly import limitations from the specification, add extraneous language not contemplated by the claims, and ignore the inventive features of the patents. PUMA's proposed constructions more accurately convey the meaning of the terms in dispute.

PUMA has asserted nine patents against the Defendants relating to the implementation of shared memory in a computer system.   All nine patents were originally assigned to STMicroelectronics, Inc. ("STMicro"), a semiconductor company based in Texas. STMicro filed the patent applications for U.S. Patent No. 5,812,789 and U.S. Patent No. 6,058,459 on the same day, and the two patents substantially overlap in their specifications, figures, and named inventors. Additionally, each of the '789 Patent and the '459 Patent explicitly incorporate by reference the specification of the other. Six additional asserted patents—U.S. Patent Nos. 6,427,194; 7,321,368; 7,542,045; 7,777,753; 8,054,315; and 8,681,164—are continuation applications of the '459 Patent. Together, those eight patents describe inventive systems and methods for selectively allowing multiple devices, such as a CPU and an audio/video decoder, to access a shared memory. The ninth asserted patent, U.S. Patent No. 5,960,464, describes an inventive memory management system that allows a device that typically requires a large contiguous block of memory, such as a video decoder, to share noncontiguous memory with other devices.

STMicro previously asserted the '789 Patent in a patent infringement suit against Motorola Inc. in the Eastern District of Texas, Sherman Division. As part of that case, on July

16, 2004, Judge Davis entered a claim construction order construing the terms "shared bus" and "real time operation," both of which are implicated in the current claim construction dispute. *See STMicroelectronics, N.V. v. Motorola Inc.*, 327 F. Supp. 2d 687 (E.D. Tex. 2004).   PUMA's constructions for the terms "real time" and "bus" adopt the constructions previously applied by Judge Davis.   Judge Davis's constructions of these terms are consistent with how the terms are used in the patent specifications and consistent with how a person of ordinary skill in the art would interpret these common terms.

In contrast, Defendants' constructions deviate from Judge Davis's claim construction order by incorporating extraneous concepts that are inconsistent with the intrinsic and extrinsic evidence.   For example, as discussed further below, Defendants' construction for "bus" would restrict the term to a set of "parallel" signal lines over which information is "broadcast."   Neither the term "parallel" nor "broadcast" appears *anywhere* in the patents, and Defendants' construction for "bus" would compel the jury to guess as to the meaning of those two new terms. Moreover, Defendants' overly-narrow construction is contradicted by how their *own expert* uses the term "bus" in his own patents.   Defendants similarly contend that the term "real time" is indefinite despite the fact that another court in this Judicial District has already construed the term and despite the fact that their own expert uses the exact same term—*without even defining it*—in his own textbooks and academic papers.   Given the intrinsic evidence, Judge Davis's previous claim constructions, and the use of these common terms by the Defendants' own expert, the Court should reject Defendants' arguments and constructions for the terms "bus" and "real time."

For other terms, Defendants' constructions either read out embodiments of the inventions disclosed in the patent specification and figures or improperly import limitations from the

specification, whichever serves their needs at the moment. Instead of proposing constructions that adhere to the intrinsic evidence, Defendants' claim construction efforts are an attempt to manufacture non-infringement arguments by restricting the full scope of the asserted claims. Additionally, because many of Defendants' proposed constructions insert extraneous language not found in the patents, Defendants' constructions would only increase the risk of confusion.

PUMA's constructions, on the other hand, seek to provide the Jury and the Court with guidance for understanding the elements of the claimed inventions without either restricting or broadening their true scope. Because PUMA's proposed constructions are firmly rooted in the intrinsic and extrinsic evidence and are consistent with Judge Davis's previous claim construction order, PUMA respectfully requests that the Court adopt its proposed constructions.

II.   OVERVIEW OF PATENTED TECHNOLOGY

All of the asserted patents in this case relate to the implementation of shared memory in a computer system. The '789 Patent, '459 Patent, '194 Patent, '368 Patent, '045 Patent, '753 Patent, '315 Patent, and '164 Patent are generally directed toward novel systems and architectures that allow for multiple devices, such as a microprocessor and an audio/video decoder, to share a computer memory. By sharing a memory, the cost of a computer system can be decreased and its efficiency increased because the individual devices no longer need their own dedicated memory and support circuitry. This, in turn, can lead to smaller consumer devices that use less batter power during operation.

The last of the nine asserted patents, the '464 Patent, describes an inventive memory management system that allows a device that would typically require a large contiguous block of memory, such as a video decoder, to share noncontiguous memory with other devices. When a video decoder shares memory with other devices, the computer system needs to make sure that the video decoder has access to a large enough chunk of contiguous memory to handle video

decompression.   The '464 Patent addresses this issue by effectively stitching together noncontiguous memory blocks for use by the decoder. This is accomplished by translating the noncontiguous memory addresses into a set of contiguous addresses. To the video decoder, this makes it appear as if it has access to a contiguous block of memory large enough for it to handle the video decompression process. The above inventions are discussed in detail in PUMA's technical tutorial.

III.   RELEVANT LEGAL STANDARDS

The purpose of claim construction is to resolve the meanings and technical scope of claim terms. *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Accordingly, claim construction begins with and "remain[s] centered on the claim language itself." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004). The construction of terms used in a patent claim is a question of law. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 391 (1996).

Claims are to be construed from the perspective of a person of ordinary skill in the art of the field of the patented invention at the time of the effective filing date of the patent application. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (*en banc*). If commonly understood words are used in the claims, then the "ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314. "Elaborate interpretation" is not required. *Id.* (citing *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001)). To do otherwise would convert claim construction from "a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims," into "an obligatory exercise in redundancy." *U.S. Surgical*, 103 F.3d at 1568. Thus,

"district courts are not (and should not be) required to construe every limitation present in a patent's asserted claims." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008).

Consistent with this precedent, this Court has often exercised such restraint, refusing to explicitly construe words and phrases whose plain and ordinary meaning are obvious from the context of the claims without express definitions. *See, e.g.*, *Uniloc USA, Inc. v. Inmagine Corp., LLC*, 2013 WL 3871360, *4 (E.D. Tex. July 24, 2013) ("As the claim language already provides substantial guidance as to the meaning of the claim terms, the plain and ordinary meaning of the claim language controls. Therefore, the term 'determine if the [first/second] right is available' does not require construction."); *UltimatePointer, L.L.C. v. Nintendo Co., Ltd.*, 2013 WL 2325118, *14 (E.D. Tex. May 28, 2013) ("Substituting 'separation' for 'distance' provides no meaningful guidance as to the meaning of the term. . . . These terms employ the word 'distance' with its common and ordinary meaning. Therefore, no construction is necessary for these terms."); *Eolas Techs., Inc. v. Adobe Sys., Inc.*, 810 F. Supp. 2d 795, 805 (E.D. Tex. 2011) ("Regarding the 'specifies the location [of at least a portion of [an/said] object]' language, the parties' proposed constructions are merely attempts to restate the claim language or an effort to include the plain and ordinary meaning. Accordingly, this term needs no construction."); *Avago Techs. U.S., Inc. v. STMicroelectronics, Inc.*, 2011 WL 3439929, *5 (E.D. Tex. Aug. 5, 2011) ("As with 'host device,' the Court will not specifically construe the 'an electronic chip for use in an apparatus' since its plain and ordinary meaning would be readily understood by the jury.").

When an ordinary meaning is not apparent, the courts look to the language of the claims, the specification, prosecution history, and extrinsic evidence such as dictionaries and treatises. *Phillips*, 415 F.3d at 1314-18. Construction begins with the language of the claim, and the court

"presume[s] that the terms in the claim mean what they say." *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 711 F.3d 1348, 1360 (Fed. Cir. 2013) (citing *Phillips*, 415 F.3d at 1312). Also, "the context in which a term is used in the asserted claim can be highly instructive." *Phillips*, 415 F.3d at 1314; *see also Abtox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023 (Fed. Cir. 1997) ("[T]he language of the claim frames and ultimately resolves all issues of claim interpretation.").

In addition to the claims, the specification's written description is an important consideration during the claim construction process. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The specification, including the claim language, "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315. The patentee may in some cases act as his or her own lexicographer. "When a patentee defines a claim term, the patentee's definition governs, even if it is contrary to the conventional meaning of the term." *Honeywell Int'l, Inc. v. Universal Avionics Sys. Corp.*, 493 F.3d 1358, 1361 (Fed. Cir. 2007).

Features of a preferred embodiment must not be read into the claims as new limitations. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906-08 (Fed. Cir. 2004); *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 880 (Fed. Cir. 2004). In fact, the Federal Circuit cautioned that "although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments." *Phillips*, 415 F.3d at 1323; *see also Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 957 (Fed. Cir. 1983) ("That claims are interpreted in light of the specification does not mean that everything expressed in the specification must be read into all the claims."); *Innova/Pure Water*, 381 F.3d at

1117 ("[P]articular embodiments appearing in the written description will not be used to limit claim language that has broader effect.").

The prosecution history may also be helpful. *Phillips*, 415 F.3d at 1317. However, "it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* Extrinsic evidence may provide guidance in some circumstances, but should not be used to "change the meaning of the claims in derogation of the indisputable public records consisting of the claims, the specification and the prosecution history." *Id.* at 1319 (quotation marks omitted).

IV.   AGREED CONSTRUCTIONS

PUMA has reached agreement with Defendants HTC and LG regarding the construction of the term "simultaneously accesses the bus" as "accesses the bus at the same time." *See* Supplemental Joint Claim Construction Statement, Dkt. 116 at 1.

V.   TERMS FOR CONSTRUCTION

A.   "bus"

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
"bus" '789: 1, 13 '459: 1, 2, 7, 11, 13 '194: 1, 2, 9, 11, 16-18, 23 '368: 1, 5, 7, 13, 19, 20, 23 '045: 1, 4, 5, 12, 15 '753: 1, 7 '315: 1 '164: 1, 6, 7	No construction necessary. Alternatively: "a signal line or a set of signal lines to which a number of devices are coupled and over which information may be transferred"	"a signal line or set of parallel signal lines to which a number of devices are attached and over which information may be broadcast among them"

The term "bus" is widely used and understood by those of ordinary skill in the art, and the Court need not construe it. To the extent that the term needs construction, however, the

Court should adopt PUMA's proposed construction, which accurately reflects how a person of ordinary skill in the art would view the term.

PUMA's construction comes from a previous case involving the '789 patent. In that case, both the plaintiff, STMicro, and the defendant, Motorola, agreed that the term "shared bus" is "[a] signal or set of signal lines to which a number of devices are coupled and over which information may be transferred between them." *STMicroelectronics, N.V. v. Motorola Inc.*, 327 F. Supp. 2d 687, 711 (E.D. Tex. 2004).   Judge Davis subsequently adopted this agreed construction. *Id.* As explained above, the eight asserted patents that use the term "bus"— including the '789 Patent—contain substantial overlap in their specifications, figures, and named inventors. The term "bus" is used across all eight of those patents in a manner consistent with this construction.

Additionally, this construction is consistent with how the term is defined in extrinsic sources. For example, the Sixth Edition of the IEEE Standard Dictionary of Electrical and Electronics Terms, which was published contemporaneously with the filing date of the '789 Patent and the '459 Patent, defines the term "bus" as a "signal line or set of lines used by an interface system to connect a number of devices and to transfer data."   *See* Ex. K, IEEE STANDARD DICTIONARY OF ELEC. & ELECS. TERMS 117 (6th ed. 1996) (definition of "bus"). To the extent a construction is necessary, PUMA requests that the Court adopt its construction for this term.

Despite the fact that STMicro and Motorola originally agreed to a construction for the term "bus" in the earlier case involving the '789 Patent, HTC and LG now propose a materially different construction that uses words that do not appear in the patent specifications or the prosecution histories. The Defendants would require a "bus" to have a set of "parallel" signal

lines over which information may be "broadcast." Neither of those terms appear *anywhere* in the intrinsic evidence, and adding those limitations would only serve to confuse the Jury.

Indeed, the term "broadcast" alone is subject to a variety of constructions and interpretations. For example, in *Tivo, Inc. v. AT&T Inc.*, one of the parties' central disputes was over what the term "broadcast" meant. *See Tivo, Inc. v. AT&T Inc.*, Case No. 2011 WL 6961021, at *3–4 (E.D. Tex. Oct. 13, 2011) (analyzing whether "broadcast" meant "sending data indiscriminately" or whether it also covered "data that is sent to only a particular user"). Because the term "broadcast" is not used in any of the asserted patents, neither the Parties nor the Court will have any guidance as to how to apply this added term. To the extent it simply means "transmitted"—as held by the court in the *Tivo* case—PUMA's use of "transferred" is less ambiguous and less confusing than Defendants' construction. *See id.* (construing the term "accepts broadcast data" to mean "accepts data that was transmitted"). However, to the extent Defendants intend for the term "broadcast" to have a more specific meaning, such a narrow construction is not supported by either the intrinsic or extrinsic evidence.

Similarly, Defendants' addition of the term "parallel" is ambiguous in that it could refer either to a geometrical arrangement of the signal lines (*i.e.*, parallel lines versus perpendicular lines) or to the method of data transmission (*i.e.*, parallel data versus serial data). Regardless of which meaning the Defendants intended by adding the term "parallel," however, the asserted patents do not make either of those distinctions and do not use the term "parallel." Like the term "broadcast," the Defendants' addition of the term "parallel" is not supported by either the intrinsic or extrinsic evidence.

In fact, the Defendants' own expert, Dr. Harold Stone, has defined "bus" in a manner that contradicts Defendants' construction. In U.S. Patent No. 5,093,890, on which Dr. Stone is a

named inventor, the term "bus" is defined as "a series of electrical lines interconnecting the

modules in the computer." Ex. L, U.S. Patent No. 5,093,890, at 1:19–21. Notably, Dr. Stone's

definition does not require "broadcast" capabilities or "parallel" signal lines. As a result, the

Court should reject Defendants' overly narrow construction and adopt PUMA's construction

instead.

B.   "real time" and related terms

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
"real time" '789: 1, 13 '315: 1 '164: 1, 6	"fast enough to keep up with an input data stream"	Indefinite. Alternatively: "fast enough to enable the decoder to decode an image in the time between screen refreshes"
a. "the bus having a sufficient bandwidth to enable the decoder to access the memory and operate in real time when the first device simultaneously accesses the bus" '789: 1 b. "the bus having sufficient bandwidth to transfer data in real time between the shared memory and the decoder" '315: 1	a. "the bus having a sufficient bandwidth to enable the decoder to access the memory and operate fast enough to keep up with an input data stream when the first device simultaneously accesses the bus" b. "the bus having sufficient bandwidth to transfer data fast enough to keep up with an input data stream between the shared memory and the decoder"	Indefinite. Alternatively: a. "the bus having enough bandwidth to enable the decoder to decode an image in the time between screen refreshes when the first device simultaneously accesses the bus" b. "the bus having enough bandwidth to transfer data between the shared memory and the decoder to enable the decoder to decode an image in the time between screen refreshes"

Like the term "bus," the term "real time" was previously construed in the earlier litigation

between STMicro and Motorola involving the '789 Patent. In that case, Judge Davis construed

the term "real time operation" to mean "processing fast enough to keep up with an input data

stream." *STMicroelectronics*, 327 F. Supp. 2d at 711. This construction, which PUMA proposes

above, comports with both the intrinsic and extrinsic evidence.

The term "real time" is commonly used in the context of multimedia applications and

audio/video decoding. In this regard, the patent specifications describe a number of indicia of

real time operation. For example, the patent specifications state that "[i]f the decoder does not

operate in **real time** the decoded movie would stop periodically between images until the

decoder can get access to the memory." Ex. A at 3:21–24 (emphasis added). The patents further

state:

> A goal is to have the decoder/encoder 45 operate in **real time** without
> dropping so many frames that it becomes noticeable to the human viewer
> of the movie. To operate in **real time** the decoder/encoder 45 should
> decode and/or encode images fast enough so that any delay in decoding
> and/or encoding cannot be detected by a human viewer. This means that
> the decoder/encoder 45 has a required bandwidth that allows the
> decoder/encoder 45 to operate fast enough to decode the entire image in
> the time between screen refreshes, which is typically 1/30 of a second,
> with the human viewer not being able to detect any delay in the decoding
> and/or encoding.

Id. at 6:41–52 (emphasis added).

PUMA's construction also comports with how the term "real time" is understood by

persons of ordinary skill in the art. For example, the Sixth Edition of the IEEE Standard

Dictionary of Electrical and Electronics Terms defines the term "real time" as "a system or mode

of operation in which computation is performed during the actual time that an external process

occurs." *See* Ex. K, IEEE STANDARD DICTIONARY OF ELEC. & ELECS. TERMS 879 (6th ed. 1996)

(definition of "real time"); *see also STMicroelectronics*, 327 F. Supp. 2d at 693. As observed by

Judge Davis in the earlier litigation, "[t]he relevant dictionary definition indicates that real time

concerns the processor's ability to 'keep up with' the data input." *STMicroelectronics*, 327 F.

Supp. 2d at 693. For those reasons, the Court should adopt PUMA's construction.

Despite the fact that "real time" is a common term with a meaning that is well-known to a person of ordinary skill in the art, and despite the fact that another court in this Judicial District has already construed it without issue for the '789 Patent, Defendants argue that this term renders certain claims indefinite. However, a claim is indefinite only if the specification and prosecution history fail to inform, with "reasonable certainty," those skilled in the art about the scope of the invention. *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). As observed by this Court, the "definiteness inquiry does not require 'absolute precision' because, for example, the statute 'must take into account the inherent limitations of language' and 'some modicum of uncertainty is the price of ensuring the appropriate incentives for innovation.'" *Thomas Swan & Co. v. Finisar Corp.*, Case No. 2:13-cv-178, 2014 WL 2885296, at *10 (E.D. Tex. Jun. 25, 2014) (quoting *Nautilus*).

Here, the patent specifications, together with the prosecution history, inform a person of ordinary skill in the art with "reasonable certainty" of the scope of the invention. The fact that Defendants' propose a different construction that is more limiting does not make the term "real time" or its earlier construction indefinite. Referring to *Nautilus*, this Court has noted that the Supreme Court "declined to adopt a test that would render a claim invalid when 'readers could reasonable interpret the claim's scope differently.'" *Id.* at *10. Indeed, Defendants' own expert uses the term "real time" in a variety of his own publications without even bothering to define it, which further highlights the fact that a person of ordinary skill in the art would understand the metes and bounds of the term and the scope of the claimed inventions with "reasonable certainty." *See* Decl. of Dr. Mangione-Smith, Ex. J at ¶¶ 13–16; Exs. M, N and O.[1]

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[1] Pursuant to an agreement of the parties, Defendants provided PUMA with an expert declaration on their indefiniteness argument in advance of this briefing so that PUMA could provide its own expert rebuttal declaration in conjunction with this opening brief. PUMA reserves the right to

In the alternative, Defendants argue that the term "real time" should be construed to mean "fast enough to enable the decoder to decode an image in the time between screen refreshes." However, this description of real time is embedded within a larger passage that also refers to the detection of delay by the user and the dropping of video frames. *See* Ex. A at 6:41–52. In that context, the patentees did not intend for their comment concerning a screen refresh interval to be a limiting definition for "real time" but rather a general indicia of how real time video would appear to a user. A faster or slower screen refresh interval has no direct impact on whether the decoder is operating in real time or operating fast enough to keep up with the input data stream.

Moreover, Defendants' construction would only make logical sense if the "decoder" recited in the claims is restricted to a *video* decoder. However, the patent specifications state that the "decoder 44 can be either a video and audio decoder, just a video, *or just an audio decoder*." *Id.* at 5:40–41 (emphasis added). Defendants' importation of a "screen refresh" rate is inapplicable to the context of audio decoders and would either render the claims nonsensical or read out embodiments described in the specification. In contrast, PUMA's proposed construction is consistent with any type of decoding. As a result, the Court should reject Defendants' unsupported construction and adopt PUMA's construction instead.

For the related terms reciting a "sufficient bandwidth to enable the decoder to access the memory and operate in real time," the parties' arguments and positions appear to depend entirely on the dispute over the term "real time." In light of the above arguments, PUMA respectfully requests that the Court adopt its constructions for the related terms.

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further respond to Defendants' indefiniteness argument in its reply brief after Defendants' introduce it to the Court.

C.   **"fast bus"**

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
"fast bus" '368: 7 '045: 4	"bus with a bandwidth equal to or greater than the required bandwidth to operate in real time"	Indefinite. Alternatively: "bus having a bandwidth greater than the bandwidth required for the decoder to operate in real time"

The Court should adopt PUMA's proposed construction of "fast bus" because it is the very definition that the patentee provided in the asserted patents: "A **fast bus** 70 is any bus whose bandwidth is equal to or greater than the required bandwidth." Ex. B at 8:1–2 (emphasis added). Similarly, the patent specifications state that "two devices are coupled to the memory through a fast bus having a bandwidth of *at least the minimum bandwidth* needed for the video and/or audio decompression and/or compression device to operate in real time." *Id.* at 4:59–62 (emphasis added). The specification is "the single best guide to the meaning of a disputed term," and the explicit definition of "fast bus" in the specification should be adopted as the term's construction. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

Defendants' initial argument is that the term "fast bus" is indefinite, presumably because of the specification's reference to the term "real time." But as explained above with respect to "real time," this term is not indefinite and a person of ordinary skill in the art would understand the meaning of "real time" with reasonable certainty. For those same reasons, Defendants' indefiniteness argument should be rejected.

Defendants' alternative construction, although similar to PUMA's proposed construction, inexplicably eliminates the "equal to" language from the patentee's definition. If a fast bus has "*at least* the minimum bandwidth" required for the decoder to operate in real time, then as a

matter of logic it has a bandwidth *equal to* or greater than that requirement. Ex. B at 4:59–62

(emphasis added). As a result, the Court should reject Defendants' unsupported construction and

adopt PUMA's construction instead.

D.   "coupled," "coupleable" and "coupling"

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
a. "coupled" '789: 1, 5 '368: 1, 7, 13, 19, 20 '045: 1, 4, 5, 12 '753: 1, 7 '315: 1, 13, 15 '164: 1, 8, 9, 11 b. "coupleable" '045: 1, 4, 12 '753: 7 '315: 1 '164: 1 c. "coupling" '789: 1 '194: 1, 16, 17	a. "directly or indirectly connected" b. "directly or indirectly connectable" c. "directly or indirectly connecting"	a. "attached resulting in an arrangement that includes no more than one bus" b. "attachable resulting in an arrangement that includes no more than one bus" c. "attaching resulting in an arrangement that includes no more than one bus"

The term "coupled" is commonly understood and has routinely been construed by district

courts to mean directly or indirectly connected. *See, e.g.*, *Negotiated Data Solutions, LLC v.*

Dell, Inc., 596 F. Supp. 2d 949 (E.D. Tex. 2009) ("the court defines 'coupled' to mean the

following: 'connected directly or indirectly'"); *GSK Tech. Inc. v. Eaton Elec. Inc.*, Case No.

6:06-cv-358, 2008 WL 906713, at *5 (E.D. Tex. Apr. 1, 2008) (construing "electrically coupled"

to mean "arranged so that electrical signals may be passed either directly, or indirectly via

intervening circuit, from one component to another"); *O2 Micro, Int'l, Ltd. v. Rohm Co., Ltd.*,

Case No. 2:05-cv-211, 2007 WL 4116803, at *4 (E.D. Tex. Nov. 6, 2007) (noting that the court

"previously construed the term 'coupled' to mean 'electrically connected, directly or

indirectly.'").

This common construction comports exactly with how the patentees used the term in the

asserted patents. For example, referring to Figure 1b, the '789 Patent states that the "memory

interface 18 is **coupled** to a memory 22." Ex. A at 2:25 (emphasis added). As illustrated in

Figure 1b below, the memory interface 18 is connected *indirectly* to the memory through at least

the audio decoding circuit 14.
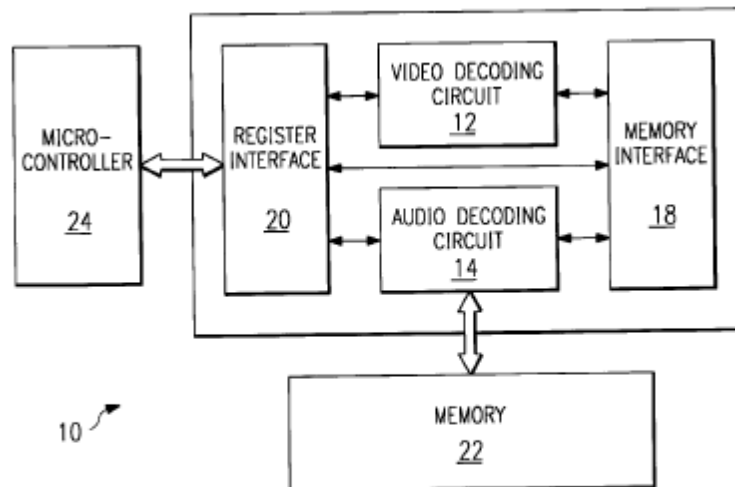
FIG. 1b
(PRIOR ART)

Similarly, referring to Figure 2, the '789 Patent states that the "decoder/encoder 45 is

coupled to the memory 50 *through devices*, typically a bus 70, that have a bandwidth greater

than the bandwidth required for the decoder/encoder 45 to operate in real time." *Id.* at 6:29–32

(emphasis added). As illustrated in Figure 2 below, the decoder/encoder 45 is connected

indirectly to the memory 50 through at least the memory interface 48 and bus 70.

FIG. 2
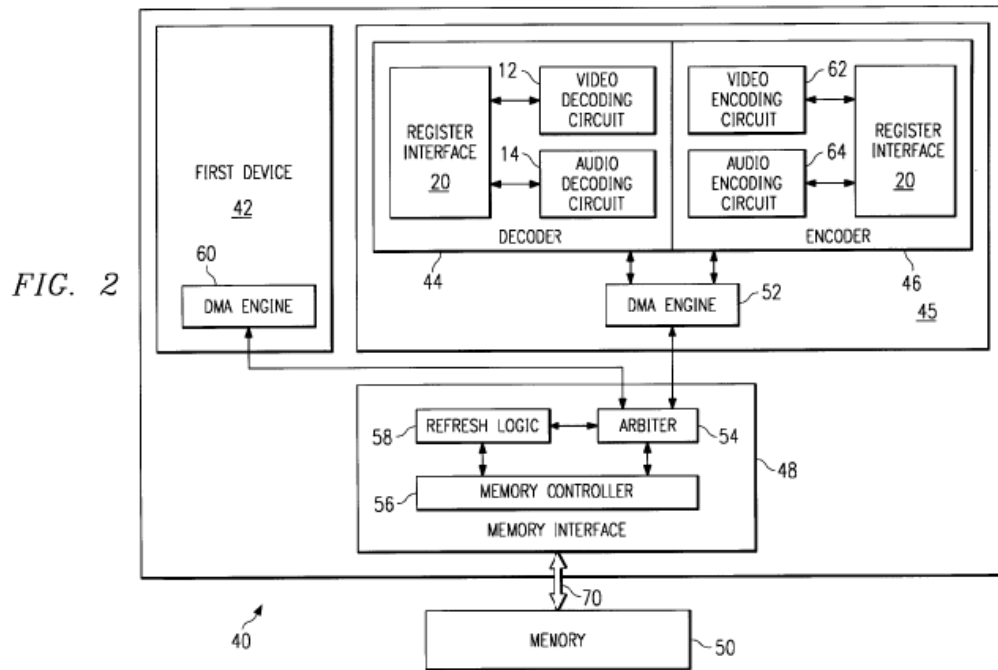
The '459 Patent and the other related patents contain similar passages. *See* Ex. B at 2:28 and 7:39–42. The patents also use the term "coupled" to refer to direct connections. For example, referring to Figure 2 above, the '789 Patent states that the "DMA engine 60 of the first device 42 is **coupled** to the arbiter 54 of the memory interface 48." Ex. A at 6:15–17 (emphasis added).

In contrast, Defendants' construction is both ambiguous and directly contradicted by the patent specifications. Defendants' addition of the term "attached" has no clear meaning and does not explicitly include an *indirect* attachment, if there even is such a thing. It is also unclear if the term would require more than a mere electrical connection, such as some sort of physical integration of the coupled components. Also, Defendants provide no guidance for the Court or the Jury as to what the added phrase "resulting in an arrangement that includes no more than one bus" would mean in the context of the claims. How can one determine what components are included (or not included) in an "arrangement" unless they know what defines its boundaries?

- 17 -

The patents provide no guidance on this point because they simply do not use the term "coupled" in the manner proposed by the Defendants.

Additionally, under any interpretation of "arrangement," Defendants' construction conflicts with the patent specification. For example, the '789 Patent states that "Fig. 1c shows a computer 25 containing a decoder 10, a main memory 168 and other typical components such as a modem 199, and graphics accelerator 188. The decoder 10 and the rest of the components are **coupled** to the core logic chipset 190 through a bus 190." Ex. A at 2:49–53 (emphasis added). However, looking at Figure 1c, the modem 199 is "coupled" to the core logic chipset 190 through bus 170 *and* bus 198. Because the modem 199 is coupled to the core logic chipset 190 in a way that results in an "arrangement" that includes two buses, Defendants construction is contradicted by the specification and cannot possibly be correct. As a result, the Court should reject Defendants' unsupported construction and adopt PUMA's construction instead.

E.   "directly supplied" and "directly supplies"

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
a. "directly supplied" '194: 15 '368: 3 b. "directly supplies" '194: 2 '368: 14, 21 '045: 2, 6, 13 '753: 3	No construction necessary. Alternatively: a. "supplied without being used in the decoding of subsequent predicted or bidirectional images" b. "supplies without being used in the decoding of subsequent predicted or bidirectional images"	a. "provided via a single bus with no intervening components" b. "provides via a single bus with no intervening components"

The term "directly supplied" concerns the system's use of decompressed frames in the context of video decoding. If taken out of context, which Defendants seem to have done, the

term "directly supplied" could be mistakenly read as the opposite of the term "coupled," which as explained above means directly *or indirectly* connected. However, the context in which the patents use "directly supplied" has nothing to do with an architecture limitation or the absence of "intervening components."

For example, dependent claim 14 of the '194 Patent states that the "decoder **directly supplies** a display adapter of the display device with an image *for use other than decoding a subsequent image*." Ex. C at 16:65–67 (emphasis added). Similarly, dependent claim 15 of the '194 Patent states that the images **directly supplied** to the display adapter being *bidirectional images* obtained from two preceding intra and predicted images." Id. at 17:4–6 (emphasis added). Thus, the term "directly supplied" must be viewed in the context of bidirectional decoding of video frames, which is explained in the patent specifications. *See* Ex. C at 3:13–25.

In MPEG video, for example, a video stream is composed of a series of video frames. The frames can be either I-frames, P-frames, or B-frames. I-frames, or intra-coded frames, are images that do not require data from other frames in order to be decompressed. In effect, they are a fully specified picture like a conventional compressed image file. P-frames, or predicted frames, use data from previous frames in order to be decompressed. This is because P-frames only contain the changes from the previous image and use the static background data from previous frames to complete the full picture. B-frames, or bidirectional frames, use data from both previous frames and forward frames in order to be compressed. As stated in the '194 Patent, "[t]he intra and predicted images are likely to be used to reconstruct subsequent predicted and bidirectional images, while the bidirectional images are not used again." *Id.* at 3:21–25. "*In the case where the compressed data correspond to bidirectional images*, the decoder/encoder 80 decodes these data and **directly supplies** display adapter 120 with the

decoded data." *Id.* at 10:48–51 (emphasis added). It is because a bidirectional image is not used

to reconstruct subsequent predicted or bidirectional images that it can be "directly supplied" to

the display adapter.

As with Defendants' flawed construction for the term "coupled" described above,

Defendants' construction for "directly supplied" seeks to improperly restrict the claim term to an

arrangement that includes only "a single bus" and does not have any "intervening components."

However, the claim term is not intended to be a limitation on the *physical* architecture or to

exclude the use of "intervening components."   For example, Figure 3 of the '194 Patent

illustrates one of the embodiments of the claimed invention. As can be seen in Figure 3 below,

the Decoder/Encoder 80 is connected to the Graphics Accelerator 200 and the Display 182

through the Core Logic Chipset 190. Under Defendants' construction, this embodiment would

be read out of the claims because of the intervening Core Logic Chipset 190 component.
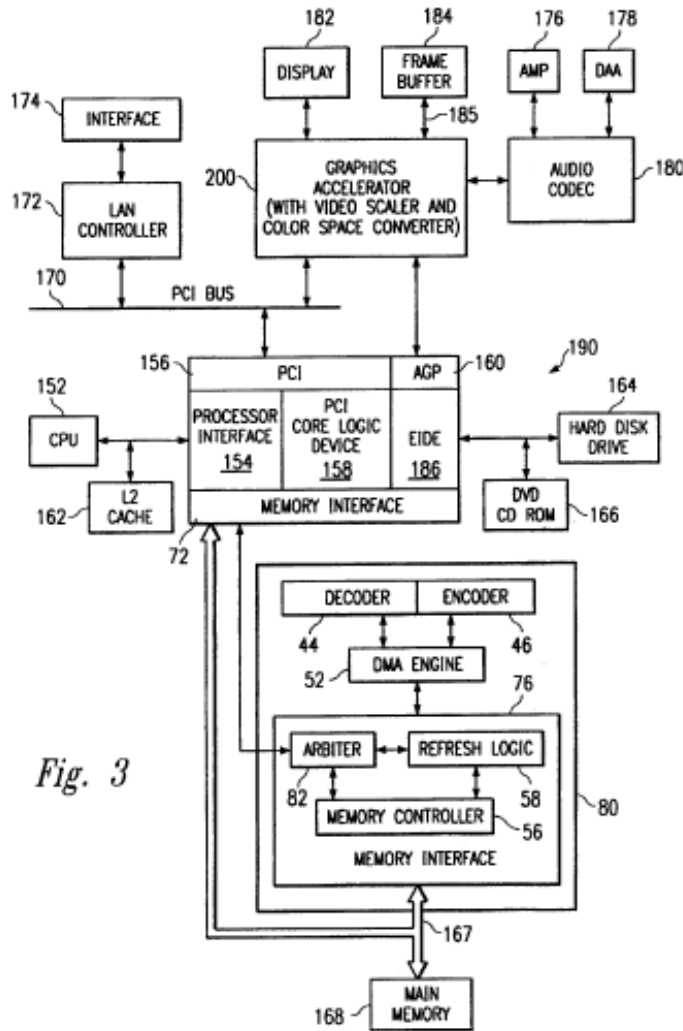
Fig. 3

Defendants' added phrase "with no intervening components" is directly at odds with the specification and would read out *every single embodiment* in which an intervening bus is used to transfer data from the decoder to the display adapter. Defendants' inclusion of the qualifying phrase "via a single bus" seems to be an attempt to evade this nonsensical result by carving out the use of a bus. However, nothing supports limiting "directly supplied" to use of a single bus. Indeed, the patent does not make this distinction and does not use the term "directly supplied" outside of the context of bidirectional decoding. For that reason, the Court should reject Defendants' unsupported construction and adopt PUMA's construction instead.

F.   "display device" and "display adapter

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
"display device" '194: 1, 3, 7, 11, 16, 17 '368: 1, 7, 13, 14, 20, 21 '045: 1, 4-6, 12, 13 '753: 1, 7	"screen and associated display circuitry"	"a device for displaying images or video, such as a screen"
"display adapter" '194: 15 '368: 2, 3 '045: 2 '753: 3	No construction necessary. Alternatively: "a circuit for processing images"	"an adapter that processes images for a display device such as a screen"

Although similar, the parties' constructions for the terms "display device" and "display adapter" differ with respect to their outer boundaries. For "display device," both PUMA and Defendants agree that it includes a screen. However, PUMA's construction accurately describes the full "display device" as also including associated display circuitry based on the claim language.

Claim construction begins with and "remain[s] centered on the claim language itself." *Innova/Pure Water*, 381 F.3d at 1116. Claim 1 of the '194 Patent states that a bus is "communicatively linked to the memory to *allow access* for the **display device**, subject to a display device access control." Ex. C at 15:51–53 (emphasis added). Similarly, claim 11 of the '194 Patent requires "a **display device** communicatively linked to the first bus" and "a memory communicatively linked to the memory interface such that the **display device** and the decoder have *access to* the memory." *Id.* at 16:41 and 16:49–51 (emphasis added).   Logically, the physical screen must be accompanied by associated display circuitry to access the memory for the image to be displayed on the screen. Together, the screen and this display circuitry form the

"display device" recited in the claims. This is explicitly described in dependent claim 14, which refers to the "display adapter *of the display device*." *Id.* at 16:66 (emphasis added). Thus, the claim language unequivocally states that the display device includes more than just the physical screen.

Defendants' construction may—*or may not*—be at odds with the claim language. For their construction, Defendants' cite language from the specification that is silent as to the boundaries of the display device, and Defendants have themselves remained silent as to how they intend to interpret this language later in this case. Thus, in order to avoid an unduly narrow and nonsensical interpretation of "display device," a construction that specifies that the term includes more than merely a physical screen is appropriate at this time.

Defendants' proposed construction for "display adapter" raises the same issue described above in that it seeks to bootstrap a definition of "display device." Additionally, Defendants' construction defines the term "display adapter" in a circular manner by referring back to the same core term: "adapter." To the extent a construction of the term "display adapter" is necessary, PUMA's construction would provide the Jury with guidance as to its meaning. The patents state that various peripherals are connected to a bus "via interfaces (e.g., a **display adapter** 120 for the screen)." Ex. C at 2:53–56. Additionally, the patents state that "**display adapters** make it possible to directly process the 'YUV' (luminance and chrominance) image data normally supplied by a decoder." *Id.* at 2:66–3:2. Thus, a "display adapter" is a circuit for processing images.

G.   **"without requiring a second bus" and "without also requiring a second bus"**

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
a. "without also requiring a second bus to access the first memory" '459: 1, 7 b. "without requiring a second bus for the first device or the decoder to access the first memory" '459: 11 c. "without requiring a second bus for the encoder to access the first memory" '459: 13 d. "without requiring a second bus for the display device or the decoder to access the memory" '194: 11 e. "without also requiring a second bus to access the memory" '194: 1, 9, 16-18, 23	No construction necessary for terms a, b, c, d, or e.	a. "accessing the first memory using only one bus" b. "the first device or the decoder accessing the first memory using only one bus" c. "the encoder accessing the first memory using only one bus" d. "the display device or the decoder accessing the memory using only one bus" e. "accessing the memory using only one bus"

The Court does not need to construe the terms above because the ordinary meaning of the claim language is clear. The dispute regarding these terms is not over what constitutes a bus, a decoder, memory access or any other technical term. Rather, the dispute concerns the meaning of the phrase "*without requiring a second bus*." Each affected claim recites a "first bus," and it would be readily apparent to both a person of ordinary skill in the art and the Jury what "without

requiring a second bus" means in that context. As such, construing these terms is unnecessary and would only risk jury confusion.

As stated above, if commonly understood words are used in the claims, then the "ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314. "Elaborate interpretation" is not required. *Id.* (citing *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001)). To do otherwise would convert claim construction from "a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims," into "an obligatory exercise in redundancy." *U.S. Surgical*, 103 F.3d at 1568. Thus, "district courts are not (and should not be) required to construe every limitation present in a patent's asserted claims." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008). Given the clear language of the above terms, construction is unnecessary.

As an example of the increased risk of confusion that would come from seeking to construe the above terms, Defendants' substitution of the term "without requiring a second bus" with the phrase "using only one bus" improperly changes the scope of the claim. As an analogy, a person could eat a meal "without requiring a second fork" and still use a spoon for the soup and a knife for the bread in addition to using a fork. But eating a meal "using only one fork" would seemingly require that no other utensils of any kind be used, confining the person to simply that one fork for the entire meal. Because Defendants' construction distorts the original plain meaning of the claim language, the Court should find that these terms do not require construction

H.   "control circuit"

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
"control circuit" '464: 1, 2, 7-13, 16-24, 32	No construction necessary.	"an electronic control device that is separate from the CPU or processor and that interacts with the operating system"

The Court does not need to construe "control circuit" because the term is effectively defined by the surrounding claim language. For example, claim 1 of the '464 patent specifies that the "control circuit" is coupled to the decoding circuit, the processor, and the main memory. Ex. I at 9:66–10:6. Claim 1 further describes that the "control circuit" is configured to "request continuous use of several portions of the main memory from the operating system" and "translate the noncontiguous addresses to contiguous addresses of a block of memory." *Id.* Because "the claim language already provides substantial guidance as to the meaning of the claim terms, the plain and ordinary meaning of the claim language controls" and no construction of the term "control circuit" is necessary. *Uniloc USA, Inc. v. Inmagine Corp.*, Case No. 6:12-cv-93, 2013 WL 3871360, at *4 (E.D. Tex. Jul. 24, 2013).

Defendants' proposed construction suffers from several flaws. First, the substitution of "device" for "circuit" is unhelpful and provides "no meaningful guidance as to the meaning of the term." *UltimatePointer, L.L.C. v. Nintendo Co.*, Case No. 6:11-cv-496, 2013 WL 2325118, at *14 (E.D. Tex. May 28, 2013). Second, requiring that the "control circuit" be "separate" from the CPU or processor would only lead to jury confusion over the alleged boundaries between the claim elements. The specification does not define what "separate" means in the context of the patent, and inclusion of this term would lead to less clarity. Moreover, because "the CPU" is not used in the claims that include the term "control circuit," Defendants' addition of this term would

add further confusion for the Jury. In essence, Defendants seek to impose a nineteen-word definition on a two-word term, despite the fact that the surrounding claim language gives proper guidance as to the meaning and scope of the term "control circuit." For the above reasons, the Court should decline to construe the term.

I.   **"algorithmically translate the noncontiguous addresses to the contiguous addresses"**

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
"algorithmically translate the noncontiguous addresses to the contiguous addresses" '464: 7, 22	"convert the noncontiguous addresses to the contiguous addresses according to at least one mathematical operation"	"convert the noncontiguous addresses to the contiguous addresses according to mathematical operations performed on the noncontiguous addresses"

The Court should adopt PUMA's construction because it is consistent with the specification's discussion of algorithmically mapping a contiguous address to a noncontiguous address. The '464 Patent states that in one embodiment, "the memory management unit 122 algorithmically maps a contiguous address to a noncontiguous address in the main memory 106." Ex. I at 8:20–23. In accordance with this embodiment, the patent states that "if two 1 megabyte blocks of the main memory 106 were provided under step 204, the memory management unit 122 can simply perform simple mathematical operations such as addition to add the offset addresses of such 1 megabyte blocks of memory to addresses in the 2 megabyte block of contiguous memory." Ex. I at 8:23–28.

In contrast, Defendants' proposed construction requires a plurality of "mathematical operations" and therefore improperly excludes embodiments that use only a single mathematical operation to translate addresses. This would, at the very least, exclude the embodiment described above that involves the lone mathematical operation of addition. Furthermore,

Defendants' construction improperly restricts the claim to embodiments where the mathematical operation is "performed *on the noncontiguous addresses*."   Nothing in the claims, the specification, or the prosecution history requires that the mathematical operation be performed on the noncontiguous address.   Thus, Defendants' construction is an improper attempt to add restrictions to the claim language and should be rejected.

J.   "video stream input device circuit"

Term and Patent/Claims	PUMA's Proposal	Defendants' Proposal
"video stream input device circuit" '315: 15	No construction required.	Indefinite. Alternatively: No construction required.

As the claim language indicates, the term "video stream input device circuit" refers to a circuit associated with an input device that receives video streams. Such a circuit would include, for example, circuitry associated with a camera that receives streams of video data. However, because the claim term already uses language that is readily understood by a person of ordinary skill in the art, no construction is necessary.

Defendants suggest through the Joint Claim Construction Statement that the term is indefinite.   PUMA reserves the right to respond to such an argument if it is introduced. However, given the plain language of the claim term, its meaning can be readily determined with "reasonable certainty" by a person of ordinary skill in the art. Additionally, because Defendants have not proposed an alternative construction, if the Court finds that the term is definite, the parties do not appear to dispute that no construction is necessary.

- 29 -

VI.   CONCLUSION

PUMA requests that the Court adopt its proposed claim constructions because its proposed constructions adhere to the language set out in the patents themselves and represent how these terms would be understood by a person of ordinary skill in the art.

Dated: April 7, 2015   Respectfully submitted,

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<u>CERTIFICATE OF SERVICE</u>

The undersigned hereby certifies that all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3) on April 7, 2015.

<p align="center">/s/ Michael McBride</p>

4845-3550-4419, v. 1